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Claims

1. A. method for determining the haematocrit and/or blood volume during an extracorporeal blood treatment with an extracorporeal blood circuit, in which blood is taken with a blood pump via an arterial cannula and an arterial flexible-tube line and blood is fed back via a venous flexible-tube line and a venous cannula, whereby the pressure is measured in the extracorporeal blood circuit and a change in the haematocrit is deduced from a change in the pressure, characterised in that the respective relationship between haematocrit HKT or blood volume RBV and pressure P in the extracorporeal circuit is stored for various cannula diameters and various blood-flow values, and the respective relationship is selected for the given cannula diameter and blood flow and haematocrit and/or blood volume is determined taking account of the selected relationship.

2. The method according to claim 1, characterised in that the pressure P_{art} in the arterial flexible-tube line is measured upstream of the blood pump.

3. The method according to claim 1 or 2, characterised in that, in order to determine the cannula diameter, the change in the pressure resulting from a change in the blood flow is determined and the cannula diameter is deduced from the change in the pressure.

4. The method according to claim 3, characterised in that the pressures P_{art1} and P_{art2} are measured at at least two different values of the blood flow in each case and the difference $\Delta P_{art} = P_{art1} - P_{art2}$ calculated from the pressures P_{art1} and P_{art2}, whereby the difference ΔP_{art} is compared with predetermined value ranges representative of the individual cannula diameters in order to determine the cannula diameter.

5. The method according to any one of claims 1 to 4, characterised in that the relationship between haematocrit or blood volume and pressure for various diameters of the cannula and various values of the blood flow is described by a non-linear function.

6. The method according to any one of claims 1 to 5, characterised in that the pumping rate BPR of the blood pump is determined in order to determine the blood flow.

7. The method according to any one of claims 1 to 6, characterised in that the blood volume RBV is determined from the haematocrit HKT.

8. The method according to claim 7, characterised in that the blood volume RBV is calculated at a specified time t of the blood treatment from the product HKT (t_0) RBV (t_0) of the haematocrit HKT (t_0) at a preceding time t_0 and the blood volume RBV (t_0) at a preceding time t_0, divided by the haematocrit HKT(t_0) at the specified time t.

9. An apparatus for extracorporeal blood treatment with an extracorporeal blood circuit, which has a blood pump (6) and an arterial cannula (5a) and an arterial flexible-tube line (5) for taking blood and a venous cannula (7a) and venous flexible-tube line (7) for feeding back blood, with a device for determining the haematocrit and/or blood volume, which has a pressure sensor (13, 14) for measuring the pressure in the extracorporeal circuit and a memory and evaluation unit (15) which is designed in such a way that a change in the haematocrit or blood volume is deduced from a change in the pressure, characterised in that the respective relationship between haematocrit HKT or blood volume RBV and pressure P in the extracorporeal circuit is stored for various cannula diameters and various blood-flow values in the memory and evaluation unit (15) and that the memory and evaluation unit (15) is designed in such a way that the appropriate relationship is selected for the respective cannula diameter and blood flow and haematocrit and/or blood volume is determined taking account of the selected relationship.

10. The apparatus according to claim 9, characterised in that the pressure sensor (13) is arranged in the arterial blood line (5) upstream of the blood pump (6).

11. The apparatus according to claim 9 or 10, characterised in that the memory and evaluation unit (15) is designed in such a way that, in order to determine the cannula diameter, the change in the arterial pressure resulting from a change in the blood flow is determined and the cannula diameter is deduced from the change in the arterial pressure.

12. The apparatus according to claim 11, characterised in that the memory and evaluation unit (15) is designed in such a way that the pressures P_{art1} and P_{art2} are measured at at least two different values of the blood flow in each case and the difference $\Delta P_{art} = P_{art1} - P_{art2}$ calculated from the pressures P_{art1} and P_{art2}, whereby the difference ΔP_{art} is compared with predetermined value ranges representative of the individual cannula diameters in order to determine the cannula diameter.